Burlington Northern Facility Missoula
February 2021 State Superfund Site Update

Background:

The Burlington Northern (BN) Missoula Comprehensive Environmental Cleanup and Responsibility Act (CECRA; also known as State Superfund) Facility is an active railyard located at Railroad and Higgins Avenues in Missoula, Montana. The Facility was previously operated by and remains owned by BNSF Railway Company (1883-1987), the liable party, and is currently operated by Montana Rail Link. The approximately 42-acre Facility formerly contained a locomotive maintenance shop and currently has active east and west fueling locations. Outside of the railyard itself, the Facility also extends into the commercial and residential areas to the southwest of the railyard. Spills and leaks from historic and current railroad operations have resulted in contamination of soils and groundwater with free product diesel fuel, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and metals. BNSF Railway has completed a remedial investigation, risk assessment, feasibility study, and installation of bioventing systems as interim remedial (cleanup) actions for the Facility under an Administrative Order issued by DEQ. The purpose of these activities was to determine the type and amount of contamination, characterize the risk of human and ecological exposures to contamination, and reduce the amount of free product present at the Facility.

Next Steps at BN Missoula

DEQ has completed a Proposed Plan, which is an in-depth look at cleanup options for the Facility. The Proposed Plan identifies and explains the preferred cleanup options and summarizes other cleanup options evaluated by DEQ. DEQ will select the final remedy for the BN Missoula Facility following a 30-day public comment period on the Proposed Plan. The preferred remedy may be revised in response to public comments or new information. DEQ will select the final remedy in a record of decision, which will include a response to public comments DEQ receives.

Turntable at BN Missoula Facility (left) and backfilling of excavated material during diesel release cleanup (right)

Evaluating Cleanup Options

Currently, surface soil contamination exists at concentrations exceeding residential screening levels, free product remains in deep subsurface soils and groundwater, and groundwater is contaminated with petroleum hydrocarbons, PAHs, VOCs, and metals. Using information contained in the feasibility study, DEQ evaluated several cleanup options to address contamination remaining at the BN Missoula Facility. When evaluating cleanup options, DEQ must consider the present and reasonably anticipated future uses of the Facility. There were common elements to each option considered, such as long-term monitoring and institutional controls. Long-term monitoring helps in evaluating the effectiveness of the cleanup and ensures that groundwater meets water quality standards. Institutional controls are restrictions on the use of property that lessen the risks posed to human health. Institutional controls may include property use restrictions and groundwater use restrictions.

State law requires DEQ to consider seven specific criteria when proposing, evaluating, and selecting the preferred cleanup option. The cleanup options must:

1. Protect public health, safety, and welfare and the environment;
2. Meet applicable or relevant state and federal environmental requirements, criteria, or limitations (ERCLs);
3. Demonstrate mitigation of exposure to unacceptable risks to public health, safety, welfare and the environment;
4. Be effective and reliable in the short- and long-term;
5. Be technically practicable and implementable;
6. Use treatment technologies or resource recovery technologies, if practicable, giving due consideration to engineering controls; and
7. Be cost effective.

Cleanup options considered in the BN Missoula feasibility study and proposed plan include:

1. No Further Action
2. Bioventing
3. Natural Source Zone Depletion (NSZD)
4. Bioslurping/Enhanced Fluid Recovery and/or Vacuum-Enhanced Dual-Phase Extraction
5. Passive and/or Active Skimming
6. Monitored Natural Attenuation (MNA)
7. In Situ Bioremediation
8. Air Sparging/Soil Vapor Extraction
9. In Site Chemical Oxidation
10. Soil Containment
11. Soil Excavation and Offsite Disposal
12. Soil Excavation, Ex Situ Treatment, and Backfill

The no further action alternative is used as a baseline to compare the other options against. None of the options would meet all the seven criteria alone; however, a combination of options will meet the criteria.

The Preferred Remedy

DEQ's preferred remedy for the BN Missoula Facility is a combination of alternatives 2, 3, and 6. The preferred remedy also includes institutional controls and long-term monitoring. Alternative 2 (Bioventing) will both add oxygen to the subsurface and extract air from the subsurface in areas of the Facility to better oxygenate the subsurface to enhance the natural breakdown of free product and petroleum hydrocarbons. This alternative will address remaining free product, as well as deep subsurface soil and groundwater petroleum-related contaminants. Alternative 3 (NSZD), will breakdown the remaining free product in deep subsurface soils throughout the Facility through natural process such as volatilization, dissolution, and biodegradation; including areas outside the bioventing systems; thereby helping to reduce the source of contamination to groundwater. Alternative 6 (MNA) relies on monitoring to track the natural decrease of contaminants in groundwater after the source of contamination is controlled or removed. Institutional controls will be implemented in the form of a restrictive covenant on railyard property prohibiting residential use and restricting use of contaminated groundwater until it meets cleanup levels. Use of institutional controls will provide protection to human health and the environment by preventing exposure to contamination and limiting property usage. Long-term groundwater monitoring will be used to confirm the effectiveness of the preferred remedy.The preferred remedy was selected over other options because it is expected to substantially reduce risks in the long-term through removal of the source of groundwater contamination (free product) and removal of contaminants from groundwater and includes measures to prevent future exposures to currently contaminated groundwater. The preferred remedy also allows the onsite property to continue to be used for the reasonably anticipated future land use (commercial/industrial), with minimal disturbance to existing operations. The preferred remedy is expected to address contamination within a reasonable time frame and is anticipated to be as or more effective than other options or combinations of options considered, despite costing less.

Public Involvement

The preferred remedy discussed in the proposed plan is based on information in DEQ's files for the BN Missoula Facility. The complete files are available at DEQ's Helena office at 1225 Cedar Street in Helena, Montana. The proposed plan can be viewed online at http://deq.mt.gov/public/publiccomment and at the Mansfield Library, 32 Campus Drive, Missoula, Montana. DEQ encourages the public comment on the proposed plan during the public comment period running from February 26, 2021, through April 2, 2021. During this time period, written comments may be mailed to Zachary Neudeck, Montana DEQ, Waste Management and Remediation Division, P.O. Box 200901, Helena, MT 59620-0901 postmarked no later than April 2, 2021. Comments may be submitted electronically to Zachary.Neudeck@mt.gov no later than 11:59pm on April 2, 2021. Oral comments will not be accepted over the phone, but you may call Zachary Neudeck for additional information at 406-444-6773.DEQ will hold a virtual public meeting on Zoom on Wednesday, March 24, 2021 at 6:30pm. A link to the meeting will be available on DEQ's website at https://deq.mt.gov/Public/publicmeetings.